

REMARKS

Claims 22-42 were under consideration by the Examiner.

Claims 25-29 and 35 have been cancelled to simplify and expedite prosecution.

Claim 22, the only independent claim, has been extensively amended to more clearly define over the prior art and is believed to be clearly patentable in its present form, as will be discussed below. Some of the dependent claims have been amended as well. However, the primary issue is the patentability of claim 22.

Certain of the claims have been rejected on the ground of non-statutory obviousness-type double patenting over applicant's earlier U.S. Patent No. 7,306,693, in view of Miyazaki JP401016632. Applicant stands ready to submit a terminal disclaimer obviating this rejection, upon indication of allowable subject matter in this application.

Reconsideration and allowance of claim 22 is requested, as claim 22, in its amended form, clearly distinguishes patentably from all of the prior art of record. Claim 22, as now amended, calls for a "further heating means" which is movable with the first heating means and comprises a "tubular member surrounding the first heating means and the composite layer to deflect hot gas passing through the layer of composite material back towards the composite layer." This language clearly distinguishes from any combination of Boyce and Miyazaki. Claim 22, as amended, calls for the "further heating means" to be a tubular member, movable with the first heating means and both spaced from the duct being lined and surrounding the first heating means and the composite layer. The specified function of the tubular member is to deflect hot gas passing through the composite material back toward

the composite material to insure more uniform heating. No similar structure is shown in Boyce.

In Boyce, notwithstanding the cartoon illustration of several of the figures, the specification makes it perfectly clear that the Twintex material is "opened out and pressed into contact with the pipe wall" before heat and pressure are applied. (Column 4, lines 55, 56). In Boyce, the positioning rollers 7, at the front of the pig, "open up the folded liner 5a ahead of the pig 6 and position the liner 5 against the wall of the pipe 4." (Column 5, lines 7-8, emphasis added). Boyce further says that the heating means are "immediately behind the positioning rollers..." (Column 5, line 10, emphasis added). Boyce specifically states that "slight air pressure will inflate the Twintex preform against the surface of the pipe." (Column 5, lines 8-10). This is all specifically contrary to the structure set forth in applicant's amended claim 22, which includes the tubular further heating means, surrounding the composite material and spaced from the walls of the duct.

It is noted that Boyce further indicates that radiant heating means is preferred because it "minimises heat loss to the surrounding pipe material." (Column 5, lines 26-27). The problem of heat loss to the surrounding material would not exist if the material were not in physical contact with the pipe during the heating process.

While the Examiner points to FIGs. 3 and 4 as showing the existence of an air gap, it is believed that this is not an appropriate interpretation of the Boyce disclosure. The drawings are obviously in the nature of cartoons or schematics. If the representations of FIGs. 3 and 4 were taken as accurate, the Boyce apparatus could not and would not function as described in very specific terms of the specification.

The accompanying Declaration of Nicholas Weatherby, one of the applicants, states that he is fully familiar with the Boyce procedure and with the Twintex

material specified in Boyce. Mr. Weatherby points out that, while the Twintex material of Boyce is permeable to air, the apparatus outlined in FIG. 3 is not able to produce an air gap between the duct and the liner. Mr. Weatherby points out that internal air pressure on the Twintex material will push the liner to the inside of the duct, which then stops airflow through the liner.

Although Boyce can optionally provide a thermoplastic liner (presumably corresponding to the liner 4 in the applicant's system), this in no way corresponds to the "further heating means" of the applicant's apparatus as set forth in claim 22. Claim 22 calls for the further heating means to be movable with the first heating means and spaced inward from the duct "to deflect hot gases." In Boyce, any liner would not be movable with the heating device. Further, since the mechanism of Boyce specifically expands the Twintex liner against the wall of the pipe, it would also expand any surrounding liner against the wall of the pipe, where such a liner is used. Thus, it is clear that the use of a thermoplastic liner in Boyce does not correspond to the structure of the further heating means of applicant's claim 22, nor does it perform a similar function.

Miyazaki, in FIGs. 1 and 2, shows a system having contact heaters on the inside and outside of a plastic liner. As the heaters are advanced through the pipe, compressed air expands the heated and softened plastic material outward against the insides of the pipe.

The inside and outside heaters of Miyazaki do not correspond to the first heating means and further heating means as set forth in applicant's claim 22. As set forth in the Declaration of Nicholas Weatherby, it is Mr. Weatherby's opinion that the Miyazaki patent, on the basis of the English language abstract and illustrations, does not show an air permeable liner. It is a fundamental attribute of the applicant's apparatus that it is constructed to process air permeable material and includes a first heating means to force hot gas under pressure outwardly through the layer of

composite material. In the FIGs. 1 and 2 version of Miyazaki, all of the heat is supplied by the two contact heaters 2 and 5 on the inside and outside, respectively, of the tube. In the FIG. 3 version of Miyazaki, heat is supplied exclusively from the outside, while compressed air is used to press the plastic material against the contact heater 5. The pressurized gas on the inside of the tube is neither heated nor passed through the plastic material of the tube. Although the Examiner indicates that the gases being discharged at the forward end of the pig 2, in FIG. 3, are for the purpose of preheating the advancing liner, it is believed that this function is not supported by the illustration or text. The gas is essentially unheated, as the only source of heat is that which is on the outside of the tube. More likely, is that the forwardly exiting gas in FIG. 3 is performing the same function as the pressurized gas in FIG. 4, namely inflating and positioning the incoming tube.

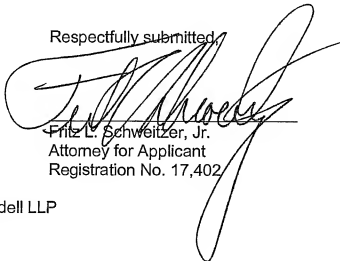
Miyazaki has no suggestion for passing hot gas through an air permeable material and deflecting the hot gas back toward the material to achieve more uniform heating, as required by amended claim 22.

Thus, neither Boyce alone or Boyce combined with Miyazaki meets the terms of claim 22, as now amended, nor do the references contain any suggestions that would make obvious the apparatus claimed. The suggestion that Boyce passes hot gas through the Twintex material and maintains an air gap on the outside is refuted both by the Boyce specification itself, in very specific terms, and by the Declaration of Nicholas Weatherby submitted herewith.

The remaining claims (23-24, 30-34, 36-42) are all dependent, directly or indirectly, from claim 22 and are believed to be allowable along with claim 22. Several of these claims have been amended to obviate objections noted by the Examiner, although the patentability thereof is based principally on the patentability of claim 22.

In the absence of a discovery of more relevant prior art, is it believed that the claims should be conditionally allowable, subject to the filing of a terminal disclaimer, as previously discussed.

Respectfully submitted,

A large, stylized handwritten signature in black ink, which appears to read 'Fritz L. Schweitzer, Jr.', is written over a horizontal line. The signature is fluid and cursive, with the first letter 'F' being particularly large and prominent.

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